

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended) An electronic camera, comprising:
 - an electronic image capture device adapted for capturing an image scene;
 - a photocell adapted for sensing a level of light energy received from said image scene;
 - a scanning aperture shutter unit located to control light energy received by said electronic image capture device and the photocell; ~~and~~
 - a flash unit; and
 - ~~an exposure control system responsive to said photocell and operatively connected to said scanning aperture shutter,~~ wherein said exposure control system is adapted to:
 - integrate the level of light energy sensed during image capture,
 - illuminate said flash unit during said image capture responsive to the integrated level of light energy reaching a first predetermined level, and
 - extinguish said flash unit and close said scanning aperture shutter unit responsive to the integrated level of light energy reaching a second predetermined level.
 - ~~control said scanning aperture shutter and a flash unit in response to sensed light energy at said photocell so that said electronic image capture device receives a predetermined ratio of variable fill flash energy to ambient light energy during image capture.~~
2. (Original) The camera of claim 1, wherein said exposure control system is adapted to illuminate said flash unit once a predetermined amount of ambient light energy is sensed by said photocell.
3. (Original) The camera of claim 2, wherein said exposure control system is adapted to extinguish said flash unit once a predetermined amount of infrared spectrum energy is sensed by said photocell during flash unit illumination.
4. (Original) The camera of claim 1, wherein said photocell includes a visible spectrum photocell and an infrared spectrum photocell, and further wherein, said exposure control system is adapted to use said visible spectrum photocell to sense ambient light energy received from said

image scene prior to illumination by said flash unit and to use said infrared photocell for sensing infrared spectrum energy received from said image scene during illumination by said flash unit.

5. (Original) The camera of claim 4, wherein said scanning aperture shutter includes separate apertures for said image capture device, said visible spectrum photocell and said infrared spectrum photocell.

6. (Original) The camera of claim 1, wherein said exposure control system is adapted to generate control signals for a detachable flash unit.

7. (Original) The camera of claim 1, wherein said flash unit is constructed integrally with said camera.

8. (Currently amended) An electronic camera, comprising:

an electronic image capture device adapted for capturing an image scene;

a scanning aperture shutter located to control light energy received by said image capture device;

a flash unit oriented to illuminate said image scene;

a photocell unit adapted for sensing a level of visible spectrum energy and infrared spectrum energy received from said image scene, wherein the scanning aperture shutter is able to control said sensed light energy; and

an exposure control system ~~responsive to said photocell unit and operatively connected to said scanning aperture shutter and said flash unit~~, wherein said exposure control system is adapted to:

integrate the level of visible spectrum energy and infrared spectrum energy sensed during image capture,

illuminate said flash unit during said image capture responsive to the integrated level of visible spectrum energy and infrared spectrum energy reaching a first predetermined level, and

extinguish said flash unit and close said scanning aperture shutter responsive to the integrated level of visible spectrum energy and infrared spectrum energy reaching a second predetermined level.

~~control an amount of fill flash energy received from said image scene in relation to visible ambient light energy received from said image scene during image capture by varying an aperture size of said scanning aperture shutter and controlling said flash unit so that said electronic image capture device receives a predetermined ratio of variable fill flash energy to ambient light energy during image capture.~~

9. (Original) The camera of claim 8, wherein said visible spectrum and infrared spectrum photocells are separate devices.

10. (Original) The camera of claim 9, wherein said shutter includes separate, proportionately operable, variable apertures for said image capture device and said photocell unit.

11. (Previously presented) The camera of claim 8, wherein said flash unit is a quenchable strobe light.

12. (Currently amended) A method for electronic image capture using a fill flash function, comprising:

using a scanning aperture shutter to control light energy received by an electronic image capture device;

sensing a level of visible ambient light energy and infrared energy received from an image scene and controlled by said scanning aperture shutter; and

controlling said scanning aperture shutter and a flash unit during image capture in response to said sensing, wherein said controlling comprises: in order to attain a predetermined ratio of variable fill flash energy to ambient light energy that is received by said electronic image capture device during image capture

integrating the level of visible ambient light energy and infrared energy sensed during image capture.

illuminating a flash unit during said image capture responsive to the integrated level of visible ambient light energy and infrared energy reaching a first predetermined level, and extinguish said flash unit and closing a scanning aperture shutter unit responsive to the integrated level of visible ambient light energy and infrared energy reaching a second predetermined level.

13. (Previously Presented) The method of claim 12, wherein said sensing uses an infrared spectrum photocell for sensing infrared energy received from said image scene during illumination by said flash unit.

14. (Previously Presented) The method of claim 13, wherein said sensing uses a visible light spectrum photocell for sensing ambient light energy received from said image scene before illumination by said flash unit.

15. (Original) The method of claim 12, wherein said scanning aperture shutter includes separate, proportionately operable, variable apertures for image capture and said step of sensing.

16. (Previously Presented) The method of claim 12, wherein said controlling includes extinguishing said flash unit once a predetermined amount of infrared spectrum energy is sensed during flash unit illumination.

17. (Currently amended) An electronic camera, comprising:
 means for capturing an image scene;
 means for controlling light;
 wherein said means for controlling light is located to control light energy received by said means for capturing from said image scene;
 means for sensing a level of light energy received from said image scene, wherein said means for controlling light is able to control said sensed light energy; and

means for controlling an exposure ~~responsive to said means for sensing light and
operatively connected to said means for controlling light including a means for scanning~~, wherein
said means for controlling an exposure is adapted to:

integrate the level of light energy sensed during image capture,
illuminate said means for controlling light during said image capture responsive
to the integrated level of light energy reaching a first predetermined level, and

extinguish said means for controlling light and close said means for capturing
responsive to the integrated level of light energy reaching a second predetermined level.

~~control said means for controlling light and a means for discharging a flash of
light in response to sensed light energy at said means for controlling light so that said electronic
image capture device receives a predetermined ratio of variable fill flash energy to ambient
light energy during image capture.~~

18. (Previously Presented) The camera of claim 17, wherein said means for controlling an exposure is adapted to illuminate said means for discharging a flash of light once a predetermined amount of ambient light energy is sensed by said light control means.

19. (Previously Presented) The camera of claim 18, wherein said means for controlling an exposure is adapted to extinguish said means for discharging a flash of light once a predetermined amount of infrared spectrum energy is sensed by said light sensing means during flash unit illumination.

20. (Previously Presented) The camera of claim 17, wherein said means for sensing light includes means for sensing visible spectrum and means for sensing infrared spectrum light, and further wherein, said means for controlling an exposure is adapted to use said means for sensing visible spectrum to sense ambient light energy received from said image scene prior to illumination by said means for discharging a flash of light and to use said means for sensing infrared light for sensing infrared spectrum energy received from said image scene during illumination by said flash unit.

21. (Previously Presented) The camera of claim 20, wherein said means for controlling light includes separate apertures for said means for capturing an image scene, said means for sensing visible spectrum light and said means for sensing infrared spectrum light.

22. (Previously Presented) The camera of claim 17, wherein said means for controlling an exposure is adapted to generate control signals for a detachable means for discharging a flash of light.

23. (Previously Presented) The camera of claim 17, wherein said means for discharging a flash of light is constructed integrally with said camera.

24. (Currently amended) An electronic camera, comprising:

a means for capturing an image scene;

a means for controlling light energy received by said means for capturing an image scene;

a means for discharging a flash of light oriented to illuminate said image scene;

a means for sensing visible spectrum energy and infrared spectrum energy received from said image scene, wherein said means for controlling light is able to control said sensed visible spectrum energy and said infrared spectrum energy;

a means for sensing a level of light energy received from said image scene; and

~~a means for controlling an exposure responsive to said means for sensing light and operatively connected to said means for controlling light and said means for discharging a flash of light,~~ wherein said means for controlling an exposure is adapted to:

integrate the level of light energy sensed during image capture,

illuminate said means for discharging a flash of light during said image capture responsive to the integrated level of light energy reaching a first predetermined level, and

extinguish said means for discharging a flash of light and close said means for capturing an image scene responsive to the integrated level of light energy reaching a second predetermined level.

~~control an amount of fill flash energy received from said image scene in relation to visible ambient light energy received from said image scene during image capture by varying an aperture size of said scanning aperture shutter and controlling said flash unit so that said~~

~~electronic image capture device receives a predetermined ratio of variable fill flash energy to ambient light energy during image capture.~~

25. (Previously Presented) The camera of claim 24, wherein said means for sensing visible spectrum and infrared spectrum are separate devices.

26. (Previously Presented) The camera of claim 25, wherein said means for controlling light includes separate, proportionately operable, variable apertures for said image capturing means and said light sensing means.

27. (Previously Presented) The camera of claim 24, wherein said means for discharging a flash of light is a quenchable strobe light.

28. (Currently amended) A method for electronic image capture using a fill flash function, comprising:

using a means for controlling light to control light energy received by a means for capturing an electronic image;

sensing a level of visible ambient light energy and infrared energy received from an image scene and controlled by said means for controlling light; and

controlling said means for controlling light and a means for discharging a flash of light during image capture, wherein said controlling comprises:

integrating the level of light energy sensed during image capture,

illuminating said means for discharging a flash of light during said image capture responsive to the integrated level of light energy reaching a first predetermined level, and

extinguishing said means for discharging a flash of light and closing said means for controlling light responsive to the integrated level of light energy reaching a second predetermined level.

~~in response to said sensing in order to attain a predetermined ratio of variable fill flash energy to ambient light energy that is received by said electronic image capture device during image capture.~~

29. (Currently amended) An electronic image capture device adapted for capturing an image scene, comprising:

a means for controlling light energy received by said electronic image capture device from said image scene;

a means for discharging a flash of light oriented to illuminate said image scene;

a means for sensing a level of light energy received from said image scene, wherein said light control means is able to control said sensed light energy; and

~~a means for controlling an exposure responsive to said means for sensing light and operatively connected to said light control means~~, wherein said means for controlling an exposure control system is adapted to:

integrate the level of light energy sensed during image capture,

illuminate said means for discharging a flash of light during said image capture responsive to the integrated level of light energy reaching a first predetermined level, and

extinguish said means for discharging a flash of light and close said means for controlling light energy responsive to the integrated level of light energy reaching a second predetermined level.

~~control said means for controlling light and a flash unit in response to sensed light energy at said means for sensing light so that said electronic image capture device receives a predetermined ratio of variable fill flash energy to ambient light energy during image capture.~~

30. (Currently amended) An electronic image capture device adapted for capturing an image scene, comprising:

a light control unit located to control light energy received by said image capture device;

a flash unit oriented to illuminate said image scene;

a light sensor unit adapted for sensing a level of visible spectrum energy and infrared spectrum energy received from said image scene, wherein said light control unit is able to control said sensed visible spectrum energy and said infrared spectrum energy; and

~~an exposure control system responsive to said light sensor unit and operatively connected to said light control unit and said flash unit~~, wherein said exposure control system is adapted to:

integrate the level of visible spectrum energy and infrared spectrum energy sensed during image capture,

illuminate said flash unit during said image capture responsive to the integrated level of visible spectrum energy and infrared spectrum energy reaching a first predetermined level, and

extinguish said flash unit and close said light control unit responsive to the integrated level of visible spectrum energy and infrared spectrum energy reaching a second predetermined level.

~~control an amount of fill flash energy received from said image scene in relation to visible ambient light energy received from said image scene during image capture by varying an aperture size of said scanning aperture shutter and controlling said flash unit so that said electronic image capture device receives a predetermined ratio of variable fill flash energy to ambient light energy during image capture.~~